

A large, light gray stylized sunburst or fan-like graphic is centered in the background, with multiple triangular segments radiating from a central point.

# **2016 Illinois Winter Preparedness Policy Session November 1<sup>st</sup>, 2016**

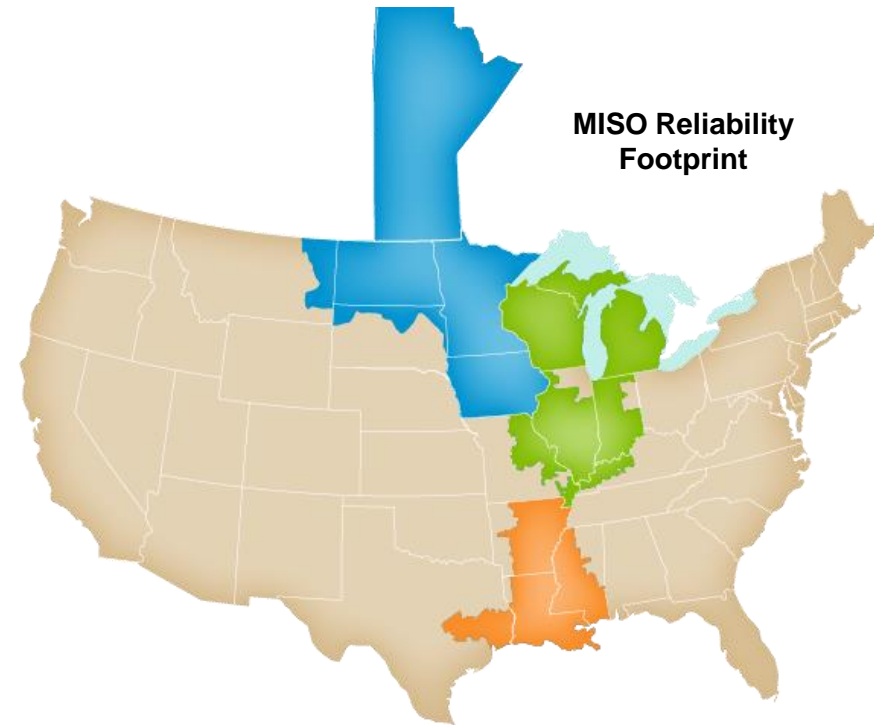
# 2016 MISO Winter Readiness Overview

MISO projects adequate reserves to meet the 2016-2017 winter season

**MISO Winter Projected Reserve  
Margin: 28.4% to 37.5%**

2016-2017 Winter Assessment results were  
presented at MISO's Winter Readiness  
Workshop on October 31<sup>st</sup>

Enhancements, maturation of Polar Vortex improvements, high levels of winter reserves and routine planning and preparation, favorably position MISO to meet winter needs



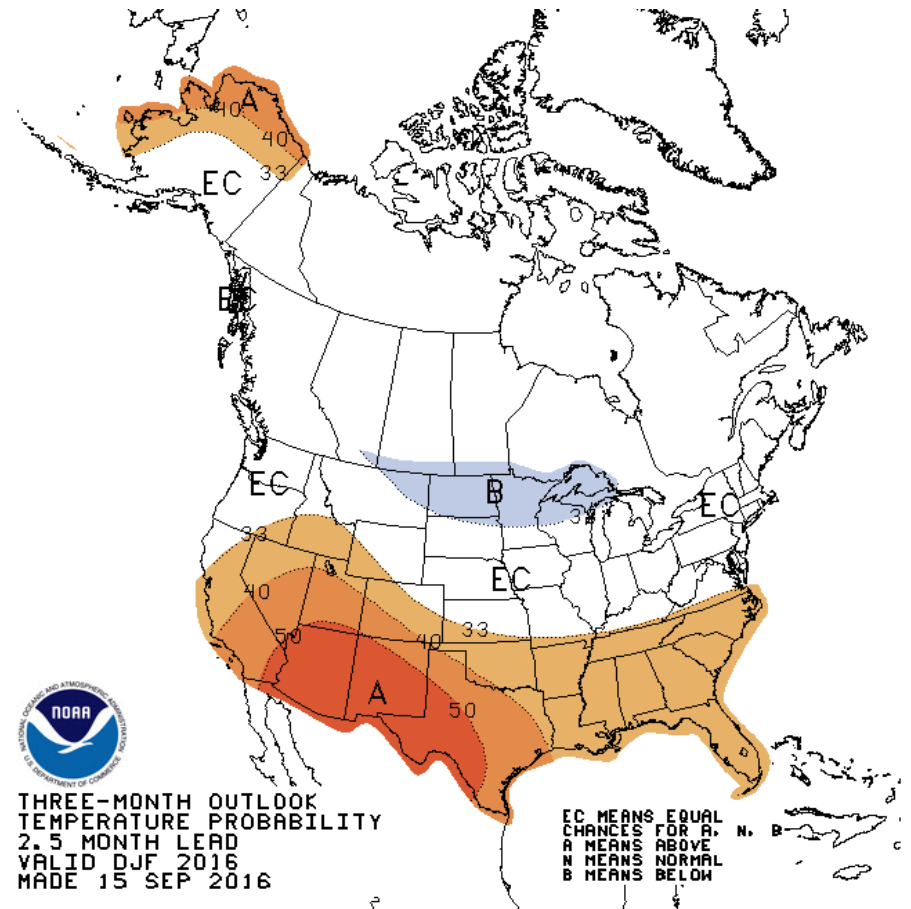
## MISO Preliminary 2016 Winter Forecast

2016 Total Available Capacity= 140.8 GW

2016 Winter Coincident Peak Forecast = 104 GW (All  
Time Winter Peak: 109.3 GW)

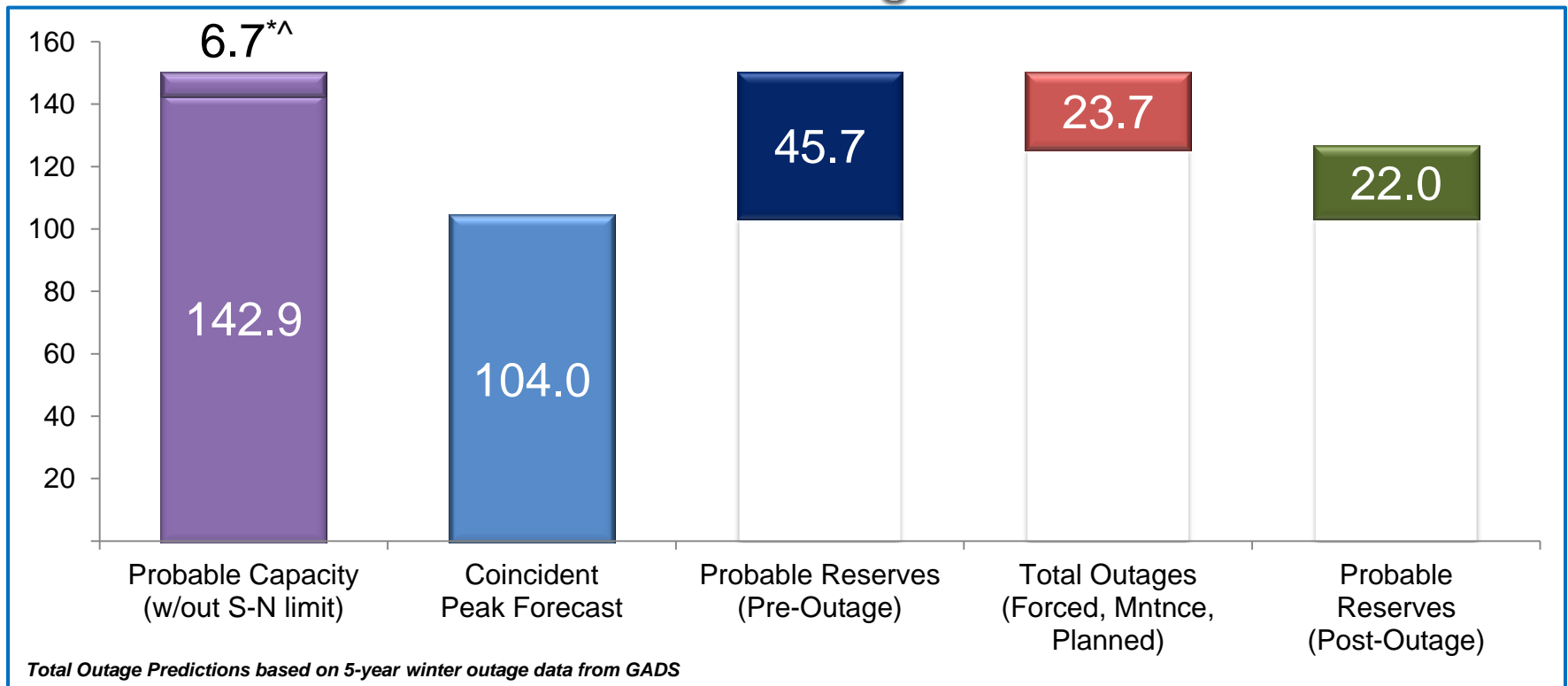
# 2016-17 Winter is forecasted to be warmer and drier than normal in the Southern region, yet colder than normal in the Northern region

- The outlooks reflect the lowered probability of La Nina effects, reducing the coverage and intensity of colder temperatures



# MISO projects adequate reserves to meet 2016-17 expected Winter peak demand forecast

## Probable Reserve Margin Scenario



\* Capacity which was assumed non-transferrable from planning analysis is included in MISO-wide outage results, to reflect total outage impact seen by operations.



^ There is 0.6 GW of additional "Energy Only" resources in the MISO-S region which can be expected to serve local load in real time operations.

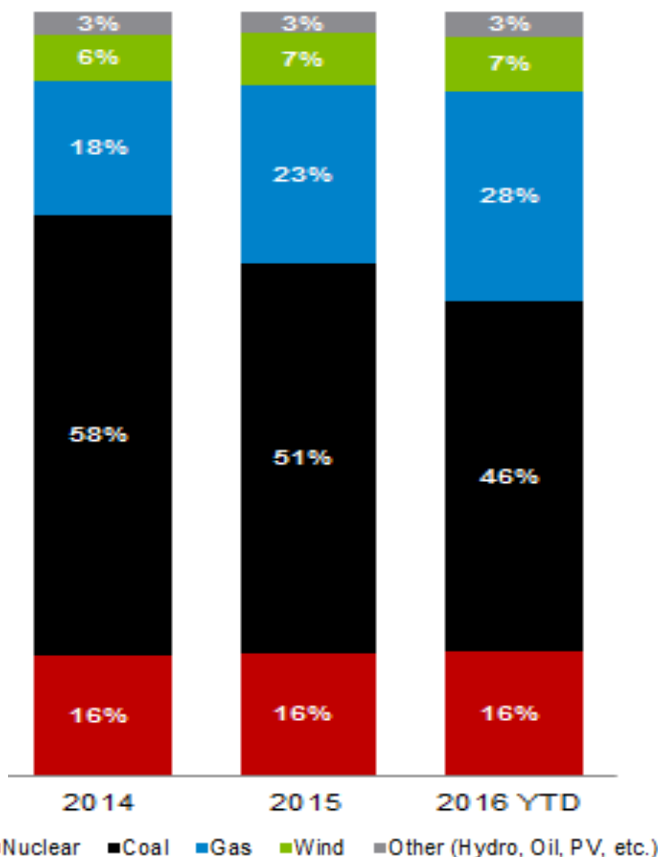
# MISO coordinates with members and neighbors to meet these challenges and ensure the integrity of the electric grid

- **Communication, Coordination, and Planning**
- **Situational Awareness**
- **Operational Tools and Procedures**
- **Education, Drills, and Workshops**
- **Engagement with state officials**
- **Electric-Gas Coordination**



# Natural Gas Coordination improvements stemming from Polar Vortex lessons learned remain important as MISO's fuel mix shifts

## MISO FUEL MIX



## GAS-ELECTRIC IMPROVEMENTS

Multiple control room tool & report enhancements (see appendix slide 11)

Align Gas-Electric Days

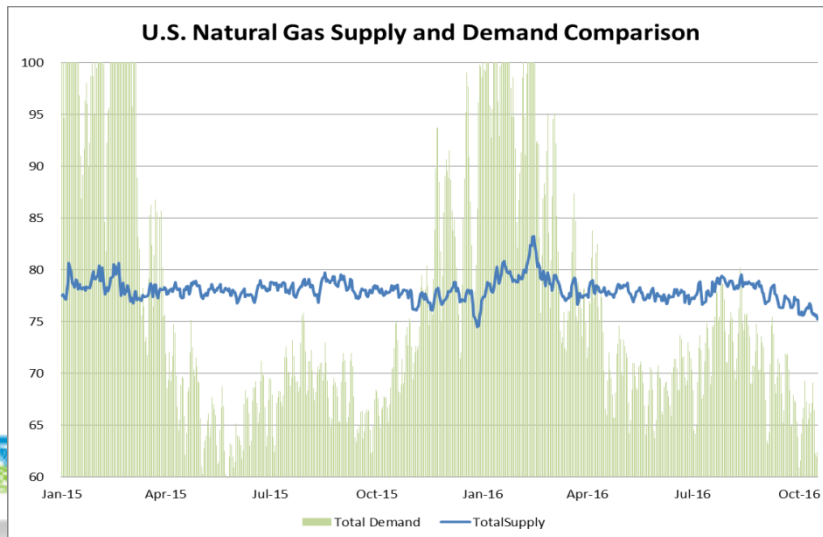
Winter Generator Survey

MISO Communication System expanded to include Pipelines

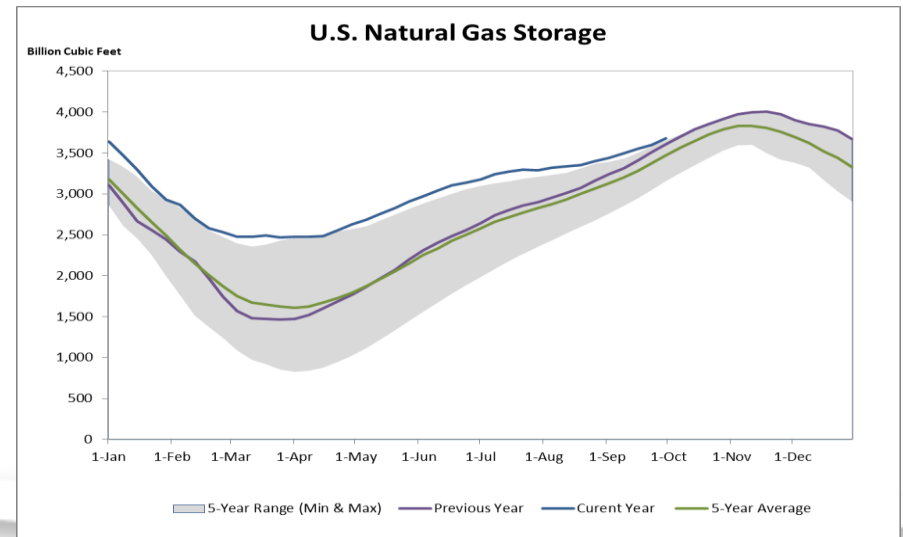
Expanding monthly Operations Call & Contact List for Pipelines

# Moderate weather and healthy storage levels position the gas market to meet winter demand

- Inventories are lower than last year's record level, but higher than the 5-year average
  - Total natural gas demand is up 5% from last year
- Predictions are calling for a colder than last year, but slightly warmer than normal winter
  - Could expect to see a rise in pipeline constraints with increased demand
  - Local distribution companies and gas utilities could increase their firm transportation contract usage, leaving less availability for non-firm shippers
- Change in pipeline flows support MISO supply diversity



Source: Energy Information Agency



Source: Energy Information Agency

# Summary

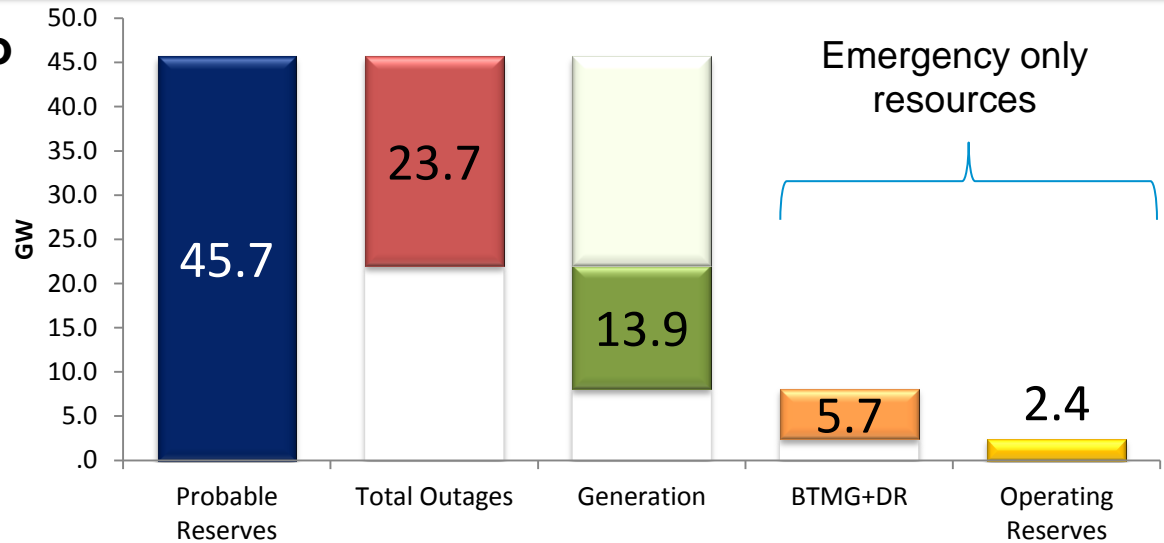
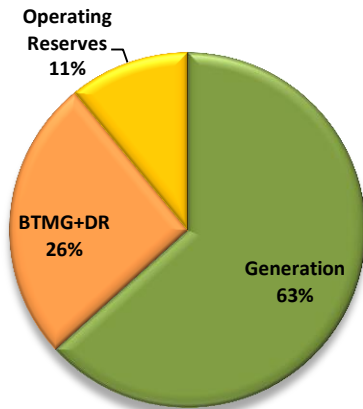
- MISO projects adequate reserves to meet 2016-17 Winter peak demand of 104.0 GW
  - Winter 2016-17 Projected Reserve Margin: 28.4% to 37.5%\*
- No identified issues with the transmission system
- FERC Order 809-driven changes to MISO's Day-Ahead Market expand gas-scheduling opportunities
- MISO manages increased competition for Natural Gas in the winter with improved tools, resources, and Electric/Gas coordination
- MISO partners with members to ensure operational readiness for winter



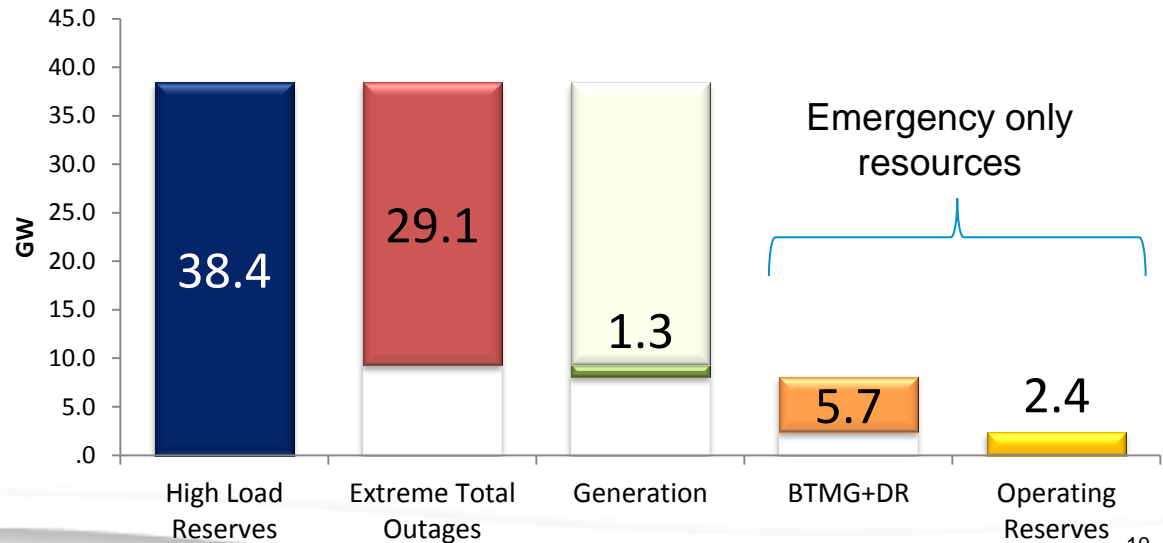
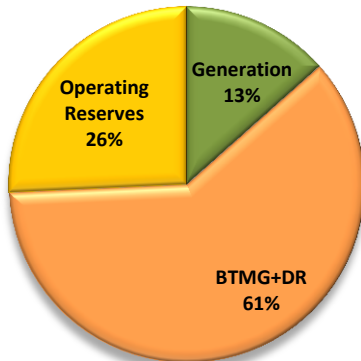
# Appendix

# In a high load/extreme outage scenario, MISO is 1.3 GW away from needing Emergency Only Resources

## Probable Outage Scenario



## Extreme Outage Scenario



# MISO manages increased competition for gas in the winter with improved tools and resources



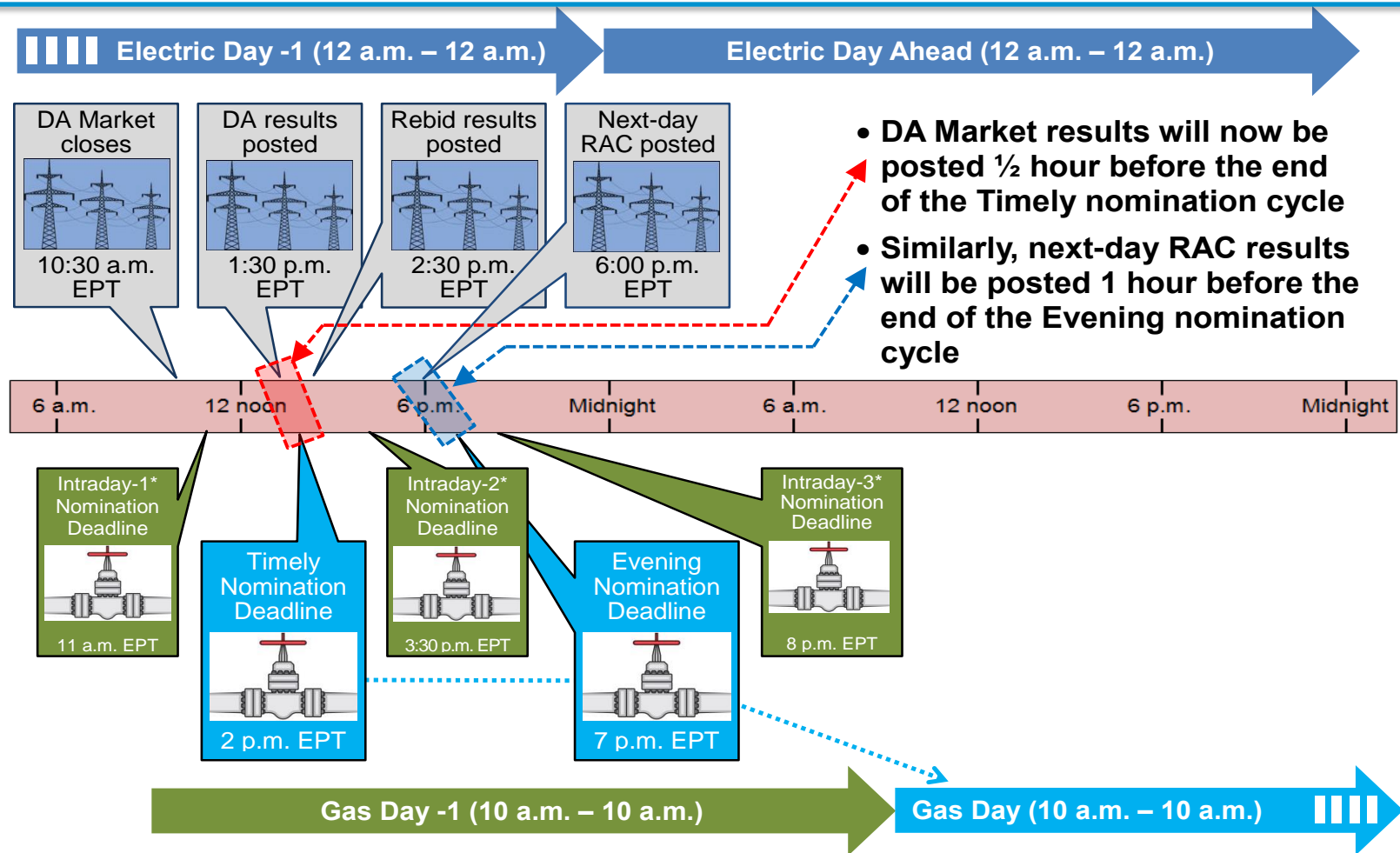
Gas pipeline  
notifications  
page on  
MISO  
website

Gas issue-  
related  
outage  
report

Electric-gas  
map  
displays in  
control room

Fuel impact  
report of  
potential at-  
risk units

# FERC Order 809-driven changes to MISO's Day-Ahead Market expand gas-scheduling opportunities



\*The Intraday nomination cycles are for trading gas that flows the same day (Gas Day -1)



# Recent enhancements also help favorably position MISO to meet winter operational needs

## SPP Settlement

*Feb 2016*

- Increased transfer limits from 1000 MW bi-directionally to 3000 MW for North-to-South (N-S) flows and 2500 MW for South-to-North (S-N), increase system efficiency and diversity

## Ramp Product

*May 2016*

- Provides transparent price signals to help manage ramp constraints that could lead to short-term reserve scarcity events

## Emergency Pricing

*July 2016*

- Creates price signals to appropriately value emergency resources and prevent uneconomic price suppression during emergencies

## FERC Order 809

*Nov 2016*

- MISO will implement changes to its Day Ahead Market to align with the Gas industry